



# NetMAX<sup>®</sup> NetPoint NetLink<sup>®</sup> NetPoint

## Personal Broadband Solution

Today's lifestyles mean an ever-growing thirst to receive data, voice and multimedia services anytime, anywhere. To meet this demand, operators of all types are building advanced broadband networks using various technologies from Wi-Fi and WiMAX to provide Personal Broadband services.

Regardless of the specific technology chosen, the ideal infrastructure must be robust and sufficiently flexible to deliver Personal Broadband services today while giving the ability to transition to future technologies. The goal is to offer end users improved productivity, lifestyles, and convenience over a sustained period.

For deploying a Personal Broadband network today, Netronics combination of the best of Wi-Fi access with the robust and quality-of-service of WiMAX, is the perfect solution.





Personal Broadband services, or the convenience of having all your communication services delivered to you on a handheld device anytime, anywhere, is the ultimate method to increase user productivity and convenience. Personal Broadband can best be provided today by a combination of Wi-Fi for access and WiMAX for backhaul.

Netronics WiMAX / Wi-Fi hybrid system does just that in being a powerful, yet cost-effective converged network that unites Wi-Fi hotspots with WiMAX backhaul to provide Personal Broadband services. As a converged system, it also gives operators the ability to migrate to a fully Mobile WiMAX network with managed services for Personal Broadband users.

Operating in both licensed and license-exempt frequencies, the NetMAX NetPoint and NetLink MP NetPoint leverage the availability of Wi-Fi technology – along with the power and robustness of WiMAX quality-of-service (QoS) – to answer critical public and private sector needs. Applications include traffic management, video surveillance, public Internet access, homeland security, and nomadic services.

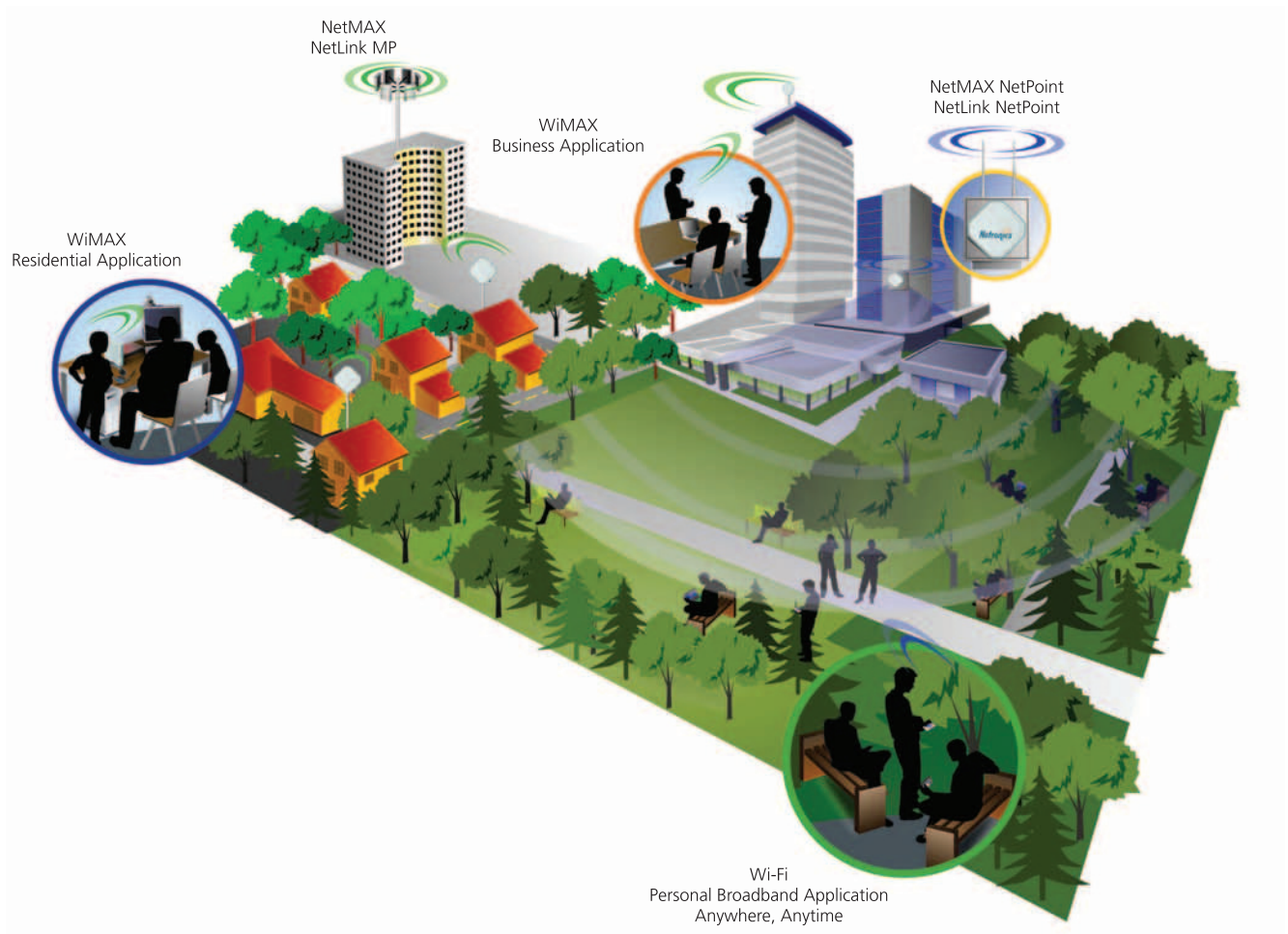
## All Outdoor Combined WiMAX / Wi-Fi solution

The system combines a fully ruggedized, outdoor Wi-Fi access point with a WiMAX CPE for backhaul. With its advanced software, NetMAX NetPoint and NetLink MP NetPoint can be deployed almost anywhere to provide broadband access to standard Wi-Fi (IEEE 802.11 b/g) end user devices.

Used in conjunction with Netronics market-leading NetMAX or NetLink MP base stations, it can be used to expand the existing capabilities of WiMAX at 2.X, 3.X and 5.X GHz. Using NetMAX NetPoint and NetLink MP NetPoint, a WiMAX or pre-WiMAX network can be used to provide Personal Broadband services to high-end business as well as residential users equipped with Wi-Fi enabled devices such as laptops, PDAs, smart phones, and portable gaming devices.



NetMAX NetPoint and NetLink MP NetPoint are self-contained, robust all-outdoor systems that require only a single connection to either AC or DC power. With its easy installation and operation, high performance, and rich security and QoS features, NetMAX NetPoint and NetLink MP NetPoint are ideal solutions for operators, municipalities and communities looking to build metropolitan broadband networks or to integrate Wi-Fi hot zone capabilities into their existing WiMAX and pre-WiMAX networks. The result is Personal Broadband services ranging from public Internet access to public safety and Intranet applications.



## Economic Advantages

- Converged network serving mobile Wi-Fi users using WiMAX/pre-WiMAX networks yielding significant installation and operations savings
- Rich set of secure differentiated service levels enabling Intranet, public access, and homeland security applications over one network
- Migration path to a 802.16e Mobile WiMAX network

## Technical Advantages

- Future-ready modularity and flexibility to integrate new technologies such as 802.16e and MIMO
- Supports WiMAX/pre-WiMAX operation in 2.X, 3.X and 5.X GHz
- Rich features including end-to-end QoS, virtual AP, VLAN and VLAN mapping, and 802.11i and 802.1x security
- Comprehensive full solution combining NetLink MP or NetMAX for backhauling with a robust high power and feature rich Wi-Fi 802.11 b/g access point

## Specifications

### Wi-Fi Access Point Specifications

#### Data Rates

802.11g: 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps per channel  
802.11b: 1, 2, 5.5, 11 Mbps per channel

#### Maximum Channels

FCC/IC: 1-11  
ETSI: 1-13  
Japan: 1-14

#### Maximum Clients

128 for the radio interface set to access point mode

#### Modulation Types

802.11g: CCK, BPSK, QPSK, OFDM  
802.11b: CCK, BPSK, QPSK

#### Operating Frequency

802.11b/g:  
2.4 ~ 2.4835 GHz (US, Canada, ETSI)  
2.4 ~ 2.497 GHz (Japan)

#### Network Management

Web-management, Telnet, SNMP

#### Radio Signal Certification

FCC Part 15.247 (2.4 GHz)  
EN 300.328, EN 302.893  
EN 300 826, EN 301.489-1, EN 301.489-17  
ETSI 300.328; ETS 300 826 (802.11b)

#### Safety

UL/CUL (CSA60950-1, UL60950-1)  
CB (IEC 60950-1)  
UL/GS (EN60950-1)

#### Wireless Radio/Regulatory Certification

ETSI 300 328 (11b/g), 301 489 (DC power)  
FCC Part 15C 15.247/15.207 (11b/g),  
Wi-Fi, DGT, TELEC, RSS210(Canada)

#### Electromagnetic Compatibility

CE Class B (EN55022)  
CE EN55024,  
IEC61000-3-2, IEC61000-3-3,  
IEC61000-4-2, IEC61000-4-3,  
IEC61000-4-4,  
IEC61000-4-5, IEC61000-4-6,  
IEC61000-4-8, IEC61000-4-11  
FCC Class B Part 15  
VCCI Class B  
ICES-003 (Canada)

#### Standards

IEEE 802.3 10BASE-T, IEEE 802.3u  
100BASE-TX,  
IEEE 802.11 b, g

#### Antenna Specifications

2x 8 dBi Omni directional (2.4-2.5GHz)

### Wi-Fi Access Point Specifications

802.11g	6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
TX power (dbm)	20	20	20	20	20	19	19	18
RX sensitivity (dbm)	-91	-90	-89	-88	-84	-80	-75	-73
802.11b	1 Mbps	2 Mbps	5.5 Mbps	11 Mbps				
TX power (dbm)	20	20	20	20				
RX sensitivity (dbm)	-96	-93	-93	-90				

### SW Features

#### Layer 2 Features

Bridge mode  
VLAN (Guest, Default, Dynamic)  
RADIUS-based)  
Spanning Tree (802.1D and 802.1W)

#### Security Features

WEP, AES  
WPA/TKIP over 802.1x & PSK  
802.11i /WPA2  
802.1x supplicant mode  
Rogue AP Prevention via 802.1x  
Static Port Security (MAC-based) (Mac 1024)

Close System - Hiding SSID from Beacon  
RADIUS authentication  
Access Control List (Mac SA, DA, Ether Type)  
Multiple SSID (BSSID, Virtual AP's) - 4 per Wireless Interface  
QoS  
WRR (Weighted Round Robin)  
Strict Priority scheduling  
802.11e (WMM baseline)

#### Hotspot

Prevent Communication between

Wireless Clients  
RADIUS Accounting (AAA)  
Background Scan & Rouge AP detection  
802.11f - IAPP Roaming (draft 2.2)  
802.11d Broadcast Country Code

#### Management

SNMP (v1, v2c, v3)  
Web access + HTTPS and SSL (Secured Web)  
Telnet + SSH V1.5 & V2 (Secured Telnet session)  
SNTP

### Physical Dimensions

#### Physical Size

32.9 x 27.8 x 21.1 cm (13.0 x 11.0 x 8.3 in) H x W x D

#### Weight

7.0 kg (49.37 lbs)

#### Temperature

Operating: -40 to 60°C (-40 to 140°F)  
Storage: -55 to 80°C (-67 to 176°F)

#### Humidity

5% to 95% (non-condensing)

#### EMC Compliance (Class B)

FCC Class B (US)  
RTTED 1999/5/EC  
DGT (Taiwan)

\*For backhaul specifications, please see NetMAX or NetLink MP documentation as appropriate

\*For further information, please contact your local Netronics sales representative



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